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A New Endogean *Trechiama* (Coleoptera, Trechinae) from the Northern Side of Central Japan*

With 5 Text-figures

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ABSTRACT A new endogean species of trechine beetle is described from Harukiyama in Niigata Prefecture, central Japan, under the name of *Trechiama* (*Pseudotrechiama*) *echigonis*. This is an important addition to our knowledge of the distributional pattern of anophthalmic *Trechiama*, since no lowland species of the genus have hitherto been known from the Japan Sea side of Honshu northeast of the Noto Peninsula. The true affinity of the present species is not certain, though the beetle superficially resembles *T. tamaensis* that occurs in the southern part of the Kwantô mountains.

It is well known that the Japanese Islands harbour a number of anophthalmic species of *Trechiama*. They are, however, not uniformly distributed. Lowland forms, including cavernicolous ones, are mainly found in the western part and the Pacific side of Honshu, while alpine forms occur in northeastern Honshu and the southern part of central Hokkaido. On the coast of the Japan Sea, the distributional range of the group of *T. ohshimai* extends northeastwards from northern Kinki to near Kanazawa (Uéno, unpublished data), but no anophthalmic species have hitherto been met with in the coastal areas northeast of the Noto Peninsula.

Towards the end of 1965, a female specimen of an anophthalmic trechine was unexpectedly taken by Dr. Kintaro Baba in a low hill at the northern end of the Kushigata hills in northeastern Echigo, on the Japan Sea coast of central Honshu. It proved to be a member of the genus *Trechiama* and appeared to have a certain relationship to the group of *T. habei*. After making careful searches in the snow, Dr. Baba succeeded in locating the actual habitat of the beetle. It was in narrow fissures of shale about 2 m below the surface, from which nearly two dozen additional specimens were taken out. The description given below is based upon the material thus obtained.

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Trechiama* (*Pseudotrechiama*) *echigonis S. Uéno, sp. nov.

Length: 4.5–5.1 mm (from apical margin of clypeus to apices of elytra).

Similar in facies to *T. tamaensis* A. Yoshida et S. Nomura (1960, p. 493, fig. 1; Uéno, 1960, p. 56), but distinguished at first sight from that species by the absence of dorsal pore on elytral stria 3 and by the presence of preapical pore at the apical anastomosis of striae 2 and 3.

Depigmented and anophthalmic, with relatively small fore-body and ample elytra; inner wings absent. Colour light reddish brown, shiny and very faintly iri-

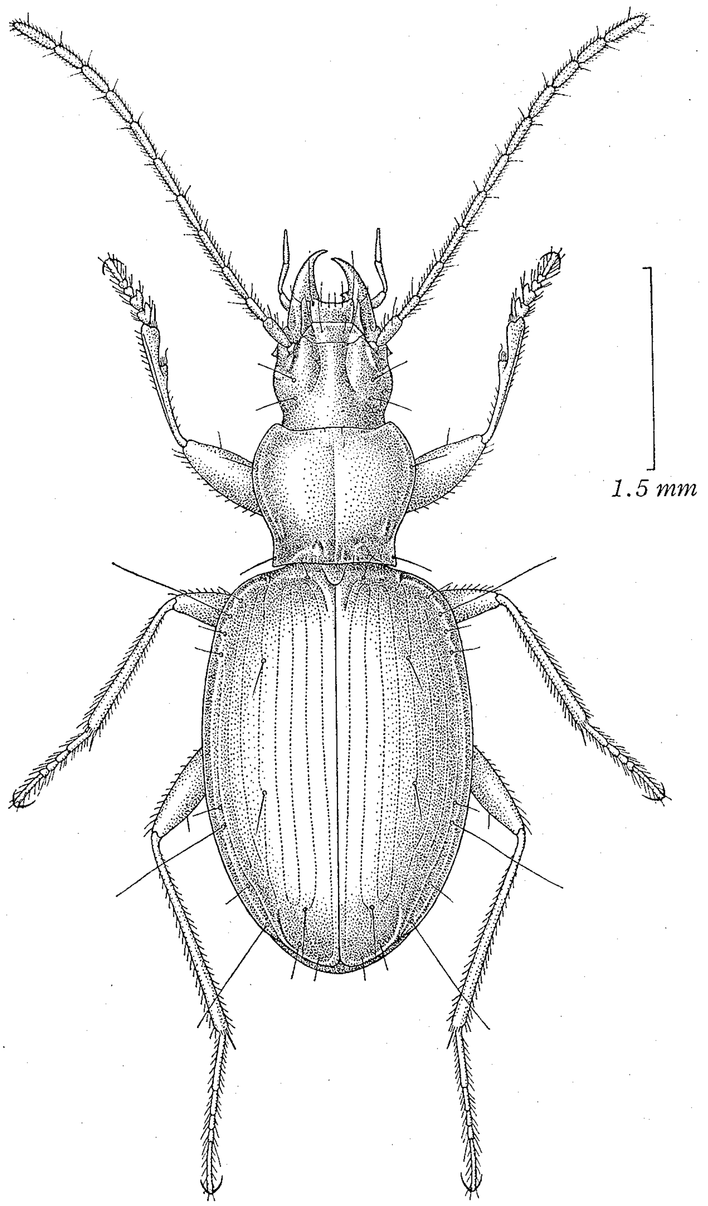


Fig. 1. *Trechiama* (*Pseudotrechiama*) *echigonis* S. Uéno, sp. nov., ♂, of Harukiyama in Niigata Prefecture.

descent; elytra usually a little lighter than fore-body; palpi, scape and apical segments of antennae, ventral side of hind body, and legs yellowish brown.

Head fairly small, transverse and moderately depressed above, with deep, entire frontal furrows which are moderately arcuate but not angulate at middle; frons and supraorbital areas gently convex; microsculpture distinct, largely consisting of transverse meshes; eyes not faceted, though the trace of them exists as a fairly large, whitish patch at the anterior portion of each gena; genae gently convex and perfectly glabrous; neck broad, neck constriction rather shallow and not sharply marked; apical margin of labrum nearly straight at middle but hardly bisinuate; mandibles fairly slender; mentum free, with a porrect tooth in apical emargination, which is usually truncated at the tip, sometimes emarginate and rarely bifid; submentum sexsetose; palpi slender, about as long as penultimate segment in maxillary palpus, shorter than the penultimate in labial palpus; antennae fairly long and relatively stout, reaching the middle of elytra (usually somewhat longer in ♂ than in ♀), with segment 2 about three-fifths as long as segment 3 or 4, each one of segments 7–9 about three times as long as wide.

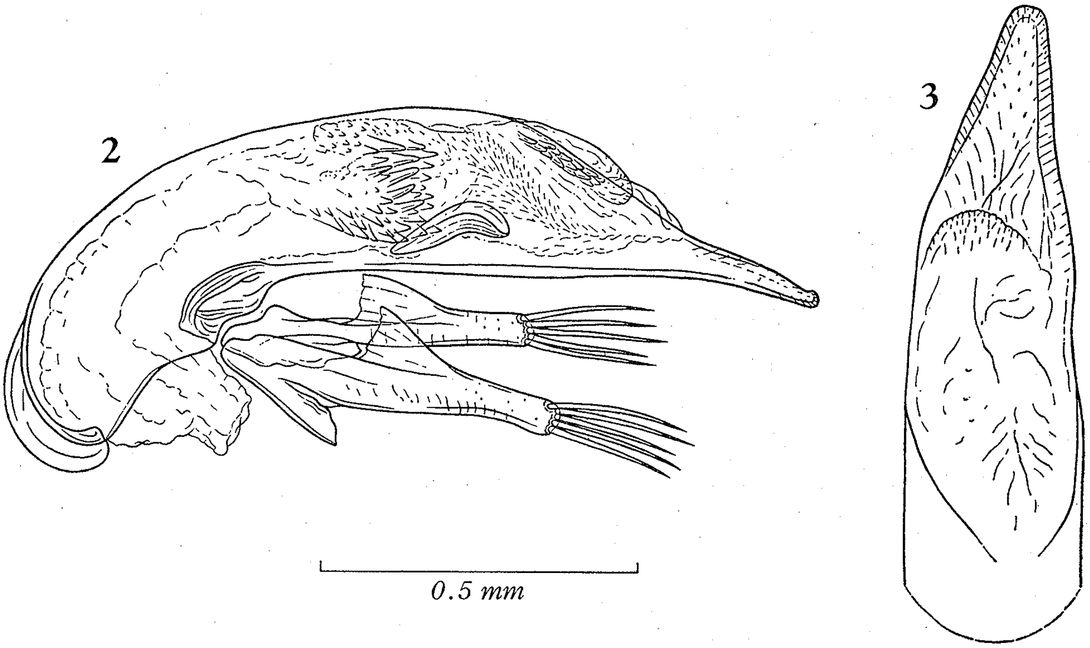
Pronotum subcordate, obviously wider than long, widest at about two-thirds from base, and equally contracted both in front and behind though the base is more or less wider than apex owing to the backward dilatation of basal part; ratio of the width of pronotum to the width of head 1.35–1.44 (mean 1.39), that of the width to the length of pronotum 1.14–1.25 (mean 1.19); ratio of the greatest width of pronotum to the width of pronotal apex 1.41–1.48 (mean 1.45), that to the width of pronotal base 1.21–1.38 (mean 1.31); disk moderately convex, with vague transverse striations; microsculpture composed of fine transverse lines partially forming transverse meshes; sides narrowly bordered throughout, moderately rounded in front, distinctly sinuate at about basal one-fifth or a little before that level, and then more or less (sometimes widely) divergent again to hind angles; both lateral and postangular setae present, the latter being distant from the angle; apex always narrower than base, nearly straight at middle in many cases, with front angles a little advanced and narrowly rounded; base either straight at middle or slightly bisinuate, the ratio of the width of base to that of apex being 1.03–1.18 (mean 1.11); hind angles rather variable in shape, though they are always sharp and project postero-laterad; in some individuals, hind angles are very sharp and produced much more laterad than posteriad; median line sharply impressed, more or less widening and deepening near base; apical transverse impression obliterated, basal one fairly deep and almost continuous, with a foveole on each side of median line and laterally merging into basal foveae, which are deep but not so large; postangular carinae always present though usually obtuse; basal area more or less uneven, longitudinally wrinkled in many cases.

Elytra ovate, widest at a level more or less before the middle, usually at about three-sevenths from base; ratio of the width of elytra to that of pronotum 1.62–1.73 (mean 1.66), that of the length to the width of elytra 1.43–1.50 (mean 1.47);

surface more or less depressed on the disk though moderately convex at the sides; microsculpture composed of fine transverse lines though partially obliterated; shoulders widely rounded, prehumeral borders short and moderately oblique; sides widely explanate and reflexed before middle, narrowly reflexed in apical half, feebly rounded from behind shoulders to near the apicalmost pore of the marginal umbilicate series, and shallowly emarginate before apices, which are separately rounded and form a very small re-entrant angle at suture; striae entire, equally impressed throughout and very faintly crenulate, scutellar striole fairly long, apical one deep and gently curved, joining stria 5; intervals flat, apical carina obtuse though distinct; no dorsal pore on stria 3; preapical pore situated at the apical anastomosis of striae 2 and 3, and obviously more distant from apex than from suture; in one of the paratypes, there are two preapical pores located one behind the other on each elytron; stria 5 with two setiferous dorsal pores situated at about one-fifth from base or a little behind that level and at about middle or a little behind that level; marginal umbilicate pores regular.

Ventral surface glabrous and smooth; sexual setae on anal sternite normal. Legs slender; protibiae straight, deeply grooved on the external face and glabrous on the anterior face even at the apical part; tarsi fairly long, segment 4 with a long ventral apophysis in pro- and mesotarsi; in ♂ protarsal segments 1 and 2 widely dilated, stoutly produced inwards at apices and furnished beneath with sexual appendages.

Male genital organ fairly large and heavily sclerotized. Aedeagus about four-



Figs. 2–3. Male genitalia of *Trechiama* (*Pseudotrechiama*) *echigonis* S. Uéno, sp. nov., of Harukiyama.——2. Left lateral view.——3. Apical part of aedeagus, dorsal view.

ninths as long as elytra, rather robust and hardly arcuate, rather rapidly attenuated from behind middle and produced into a fairly long apical lobe; basal part moderately bent towards the ventral side; basal orifice large, with the sides shallowly emarginate; sagittal aileron present, though rather narrow; viewed laterally, apical lobe narrow, slightly curved ventrad, and slightly turned up at the extreme tip; viewed dorsally, apical lobe subtriangular, slightly inclined to the left and narrowly rounded at the tip; ventral side nearly straight at middle. Inner sac armed with a copulatory piece and two patches of large teeth; copulatory piece short, spatulate, recurved, rounded at apex, and situated at a ventral position just behind middle; sclerotized teeth of the proximal patch are obviously larger than those of the apical one, lying at the left side of inner sac at about middle of aedeagus; apical patch of teeth is situated near apical orifice, forming a semicircular apical edge by fusion of terminal teeth. Styles relatively small and narrow, left style longer than the right, each provided with five apical setae.

Type-series. Holotype: ♂, allotype: ♀ (11–I–1966, K. Baba leg.). Paratypes: 1♀ (28–XII–1965, K. Baba leg.); 8♂♂, 6♀♀ (31–XII–1965, K. Baba leg.); 1♀ (4–I–1966, K. Baba leg.); 5♂♂, 1♀ (11–I–1966, K. Baba leg.). All deposited in the collection of the National Science Museum, Tokyo.

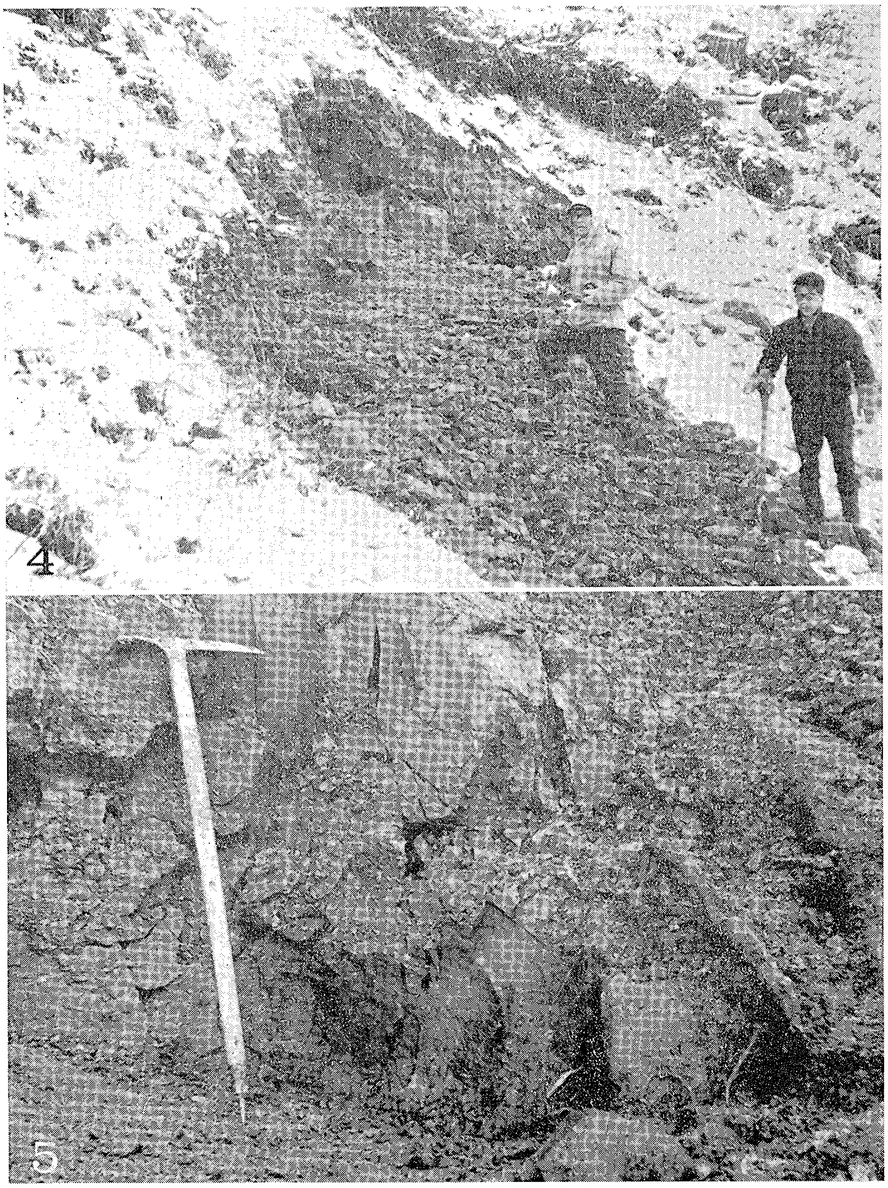
Type-locality. Harukiyama, at the northern foot of Zaô-yama Hill, in Arakawa-machi, Niigata Prefecture, on the Japan Sea coast of central Japan.

Notes. In the present state of our knowledge, the derivation of this new species cannot be determined with confidence. It resembles *T. tamaensis* of the group of *T. habei* both in general appearance and in chaetotaxial characters, but is greatly different from the latter species in the inner armature of male genitalia. This suggests that the two species may not belong to the same group. Besides, there is a wide gap between the type-locality of *T. echigonis* and the range of the group of *T. habei*, the members of which are distributed along the Pacific coast of central Honshu.

As was noticed before (Uéno, 1959, pp. 29–30), the group of *T. oni*, whose members bear the same chaetotaxial peculiarities as *T. echigonis*, has probably become differentiated from the group of *T. ohshimai* by losing setiferous dorsal pores on the third elytral stria. Such an evolutionary trend may suggest that the group of *T. ohshimai* also gave rise to *T. echigonis*. Here again, however, there is a wide geographical gap between the distributional range of the former and the type-locality of the latter, and the aedeagal structure is decidedly different between the two. For the time being, the writer prefers to place *T. echigonis* at the side of the group of *T. habei*, leaving the final decision for future investigations.

Harukiyama, the type-locality of the present species, is situated at the northern foot of Zaô-yama Hill (570 m in height). The place is not far (only 7.5 km distant) from the seashore and only 50 m above sea-level. The first specimen was found from under a stone lying at the side of a path across a cutover area along a stream. The environment was such that no collector would look for trechine beetles there.

However, later investigations amply proved that the beetle did survive in that part of the hill despite of the unfavourable condition of the surface. Its normal habitat was found at an unusual depth, in narrow fissures of shale underlying the soil (Figs. 4–5). Several attempts were made to find other habitats of the beetle, and the writer himself paid a visit to that place in the following winter. All these efforts were not fruitful, and the only habitat discovered was the spot shown in the text-figures. It is probable that some special combination of environmental conditions (space in the mudstone, humidity, food supply, etc.) is needed for the existence of such



Figs. 4–5. Habitat of *Trechiama* (*Pseudotrechiama*) *echigonis* S. Uéno at Harukiyama in Niigata Prefecture (taken by Uéno on December 4, 1966). Figure 5 shows a close-up of the upper central portion of Fig. 4.

a long-legged endogean beetle as the present trechine.

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